



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/581,614	06/05/2006	Beat Frefel	5847	5475
26936	7590	06/11/2009	EXAMINER	
SHOEMAKER AND MATTARE, LTD 10 POST OFFICE ROAD - SUITE 100 SILVER SPRING, MD 20910				STIMPERT, PHILIP EARL
ART UNIT		PAPER NUMBER		
3746				
		MAIL DATE		DELIVERY MODE
		06/11/2009		PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/581,614	FREFEL, BEAT	
	<b>Examiner</b>	<b>Art Unit</b>	
	Philip Stimpert	3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 20 February 2009.  
 2a) This action is **FINAL**.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-6 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-6 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 05 June 2006 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____ .
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ .	5) <input type="checkbox"/> Notice of Informal Patent Application
	6) <input type="checkbox"/> Other: _____ .

## DETAILED ACTION

### *Drawings*

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the connecting rod system of claim 1 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Budzich (US 4,368,008) in view of Collins (US 2,246,932).

4. Regarding claim 1, Budzich teaches a piston compressor for compressing gaseous media in several working chambers (17, 20) in a single cycle, the compressor having a stepped piston (15, 21) containing a first piston part (15) and a coaxial second piston part (21) which are driven by a power piston (22) via a rod connecting them thereto, a first cylinder (11) for holding the first piston part (15) and forming a first working chamber (17), and a second cylinder (13) holding the second piston (21) and forming a second working chamber (20), with the second piston part (21) having a smaller diameter than the first (15), the second piston passing through an opening in the end of the first cylinder (11) and being arranged at one (right) end of the first piston (15) and forming the front end of the stepped piston, with the second piston part (21) forming a cylindrical working chamber (20), and the first piston part forming an annular working chamber (17). Budzich does not teach that the cylinders are closed by plates with valve arrangements, though he does teach several exemplary valve arrangements (see Figs. 8-10), and generally teaches valves in the compressor in schematic form. Collins teach a compressor having a double-acting piston (6) arranged in a cylinder (5) that is closed

by plates (7 and 8) having valve arrangements therein, which due to their location, can be installed on and removed from the cylinder. The valving arrangement of Collins teaches another known element for providing valves to a compression cylinder, and indicates that they may be provided by known methods to achieve the predictable result of substantially one-way gas flow through a compression chamber. Where a claimed improvement on a device or apparatus is no more than "the simple substitution of one known element for another or the mere application of a known technique to a piece of prior art ready for improvement," the claim is unpatentable under 35 U.S.C. 103(a). Ex Parte Smith, 83 USPQ.2d 1509, 1518-19 (BPAI, 2007) (citing KSR v. Teleflex, 127 S.Ct. 1727, 1740, 82 USPQ2d 1385, 1396 (2007)). Accordingly, Applicant claims a combination that only unites old elements with no change in the respective functions of those old elements, and the combination of those elements yields predictable results; absent evidence that the modifications necessary to effect the combination of elements is uniquely challenging or difficult for one of ordinary skill in the art, the claim is unpatentable as obvious under 35 U.S.C. 103(a). Ex Parte Smith, 83 USPQ.2d at 1518-19 (BPAI, 2007) (citing KSR, 127 S.Ct. at 1740, 82 USPQ2d at 1396). Accordingly, since the applicant[s] have submitted no persuasive evidence that the combination of the above elements is uniquely challenging or difficult for one of ordinary skill in the art, the claim is unpatentable as obvious under 35 U.S.C. 103(a) because it is no more than the predictable use of prior art elements according to their established functions resulting in the simple substitution of one known element for another. In particular, it would have been obvious to one of ordinary skill in the art at the time of the

invention to embody the check valves of Budzich as a plates as taught by Collins since such an embodiment constitutes the mere substitution of one known element for another.

5. Regarding claim 2, Collins teaches that the plates (7, 8) are in the form of disks, and delimit the working chambers (17, 20 of Budzich in the present combination). Further, Collins teaches a piston rod (22) which the righthand valve plate (8) would have to accommodate. One of ordinary skill would appreciate that such an accommodation is analogous to that required by the rightmost piston (21) of Budzich.

6. Regarding claim 3, Collins teaches that the plates are provided with inlet and outlet valves (see Fig. 1).

7. Regarding claim 6, Collins teaches that the valves are individual valves (such as 18) with spring resetting (as shown in Fig. 1).

8. Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Budzich in view of Collins as applied to claim 3 above, and further in view of Schlossarczyk et al. (US 6,257,838).

9. Regarding claim 4, neither Budzich nor Collins teach lamellar valves. Schlossarczyk et al. teach a valve plate (9) including lamellar valves (col. 2, ln. 66). One of ordinary skill would appreciate that such a valve would be relatively easily constructed and assembled to a pump such as that of Budzich, and that it would provide simple, reliable, and independently acting valves of the type contemplated by Budzich. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the

invention to use lamellar valves as taught by Schlossarczyk et al. in the pump of Budzich as modified by Collins, in order to take advantage of the simple and reliable nature of those valves.

10. Regarding claim 5, the lamellar valves taught by Schlossarczyk et al. constitute individual tongue valves.

***Response to Arguments***

11. Applicant's arguments, see page 4, filed 20 February 2009, with respect to indefiniteness have been fully considered and are persuasive. The rejection of claim 2 under 35 U.S.C. 112 has been withdrawn.

12. Applicant's remaining arguments have been fully considered but they are not persuasive.

13. With respect to the amendment reciting "in a single cycle," the examiner notes that several of the compression chambers of Budzich (17 and 20 in particular) contract and expand concurrently. Furthermore, a cycle in a pumping action usually implies a return to the starting point, so even the opposing compression chambers (16, 18) will compress the media in a single cycle along with the rest.

14. With respect to the argument that Budzich discloses a free piston, the examiner notes, as above, that the first and second piston parts (15, 21) are drivably connected via a rod as shown in Fig. 1 to a power piston (22). This appears to satisfy the requirements of the claim.

15. With respect to the argument that Budzich and Collins "are of substantially different types," the examiner disagrees. Both are essentially fluid pumps which move

fluid by cooperation between check valves and a compression chamber whose volume varies as a piston reciprocates therein. As such, it appears that Collins merely teaches another method for embodying the valves required by such a fluid pump, and the examiner submits that the combination of those valves with the compressor of Budzich is a mere substitution falling into the purview of one of ordinary skill in the art. Further, the examiner submits that it would be apparent to one of ordinary skill in the art that the provision of valve plates as taught by Collins would provide a more modular pump, with the benefits of ease of assembly, maintenance, and replacement of failed valve components, which provides motivation to seek such a combination.

***Conclusion***

16. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Philip Stimpert whose telephone number is (571)270-1890. The examiner can normally be reached on Mon-Fri 7:30AM-4:00PM, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on (571) 272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Devon C Kramer/  
Supervisory Patent Examiner, Art  
Unit 3746no

/P. S./  
Examiner, Art Unit 3746  
9 June 2009